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Ames Research Center

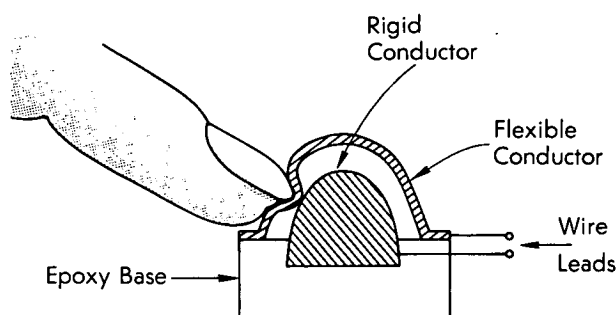


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Miniature Intermittent Contact Switch

The problem:

To provide a shock-resistant switch capable of being actuated by forces of varying magnitude and direction, primarily for use as a sensor on remote control (tele-operator) and prosthetic devices.



The solution:

A flexible conductor, such as conducting rubber, is placed a short distance away from a rigid conductor; any slight physical pressure on the flexible conductor will cause it to come into contact with the rigid conductor.

How it's done:

One form of the switch is constructed as indicated in the diagram. A short length of an appropriately shaped rigid conductor is coated with a low-melting solvent-soluble material such as wax. Then the flexible conductor is wrapped over the coated area and the assembly is firmly fastened on top of a non-conductive material such as an epoxy base. The material between the two conductors is removed by melting, and all traces are cleaned away with solvent so that clean electrical contact can be made. In order to decrease contact resistance of the switch, maximum contact between the two conductors should be maintained.

This fabrication technique is suitable for switches which must be activated by only a few thousandths of a centimeter of displacement. Switches of this form can be made of sizes which are at least one order of magnitude smaller than those commercially available.

The principle of the switch may be used to make a wide variety of switch types. In some variations, no metal at all is used to construct the switches; conductive membranes may be used to provide a disc type switch which can be activated from either side.

Note:

No additional documentation is available. Specific questions, however, may be directed to:

Technology Utilization Officer
Ames Research Center
Moffett Field, California 94035
Reference: B72-10452

Patent status:

Title to this invention has been waived under the provisions of the National Aeronautics and Space Act [42-USC 2457 (f)]; to Stanford University. Inquiries should be addressed to:

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Category 01